

States of Matter:

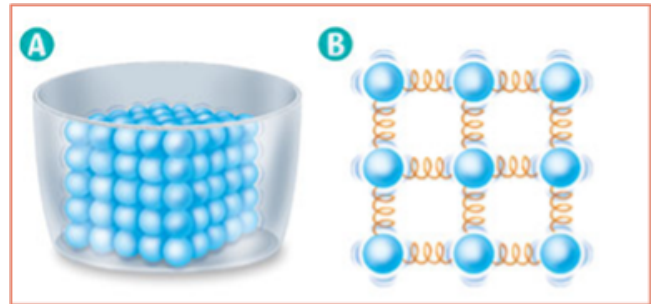
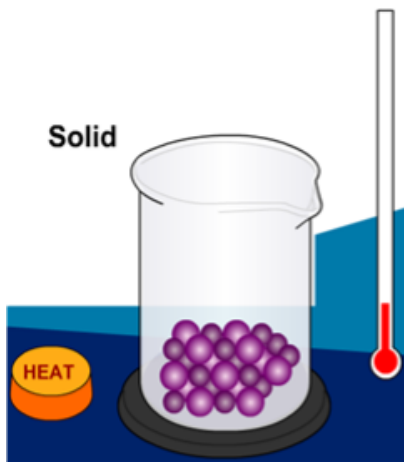
- Matter is anything that has mass and takes up space
 - 5 States of Matter
 - Bose-Einstein Condensate (BEC)
 10^{-6} K
 - Solids
 - Liquids
 - Gases
 - Plasma
- Least Energy
(Lowest Temperature)
- Most Energy
(Highest Temperature)
- Each state is designated by the movement and behavior of particles

States of Matter



- Kinetic Theory of Matter:
 - Temperature is determined by the energy of a substance
- 3 Parts of Kinetic Theory:
 1. All matter is composed of small particles (atoms, molecules, ions)
 2. Particles are in constant, random motion
 3. Particles collide with each other and the walls of their container

- Solids



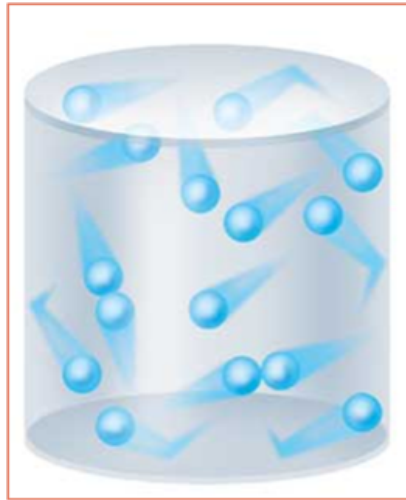
- Particles are very closely packed
- Do not move very much → simply vibrate in place
- Definite shape and definite volume

- Liquids



- As energy increases, the particles are liberated from the bonds holding them together as a solid
- Particles have a little bit of space between them
- Particles flow around each other
- No definite shape, yes definite volume

• Gases



- As the energy of the particles increases, the particles move much, much more than they were able to as a liquid
- Particles are able to move very freely and quickly (compared to solids and liquids)
- No definite shape or volume